

## **ULTRA-SENSITIVE DETECTION SYSTEMS**

### **ABSTRACT OF THE DISCLOSURE**

Disclosed are compositions and methods for sensitive detection of one or multiple analytes. In general, the methods involve the use of special label components, referred to as reporter signals, that can be associated with, incorporated into, or otherwise linked to the analytes. In some embodiments, the reporter signals can be altered such that the altered forms of different reporter signals can be distinguished from each other. In some embodiments, sets of reporter signals can be used where two or more of the reporter signals in a set have one or more common properties that allow the reporter signals having the common property to be distinguished and/or separated from other molecules lacking the common property. In other embodiments, sets of reporter signal/analyte conjugates can be used where two or more of the reporter signal/analyte conjugates in a set have one or more common properties that allow the reporter signal/analyte conjugates having the common property to be distinguished and/or separated from other molecules lacking the common property. Reporter signals can also be in conjunction with analytes (such as in mixtures of reporter signals and analytes), where no significant physical association between the reporter signals and analytes occurs; or alone, where no analyte is present.